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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/750,348      | 12/29/2000  | Igor Shvets          | 1817-0105P          | 6900             |

2292 7590 12/23/2002

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| EXAMINER |
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GITOMER, RALPH J

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

1651

DATE MAILED: 12/23/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/750,348

Applicant(s)

Shvets et al.

Examiner

Ralph Gitomer

Art Unit

1651



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Oct 15, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1, 3-18, and 20-109 is/are pending in the application.
- 4a) Of the above, claim(s) 65-108 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-64 is/are allowed.
- 6) ☒ Claim(s) 1, 3-18, 20-25, and 109 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

The amendments received 8/27/02 and 10/15/02 have been entered and claims 1, 3-18, 20-109 are currently pending in this application, claims 1, 3-18, 20-64, 109 are considered here. The amended title is unacceptable because it is not drawn to the claimed invention in a searchable fashion.

In view of the amendments to the claims, the rejection of record under 35 USC 112, second paragraph, is hereby withdrawn. Claims 26-64 are allowable.

This application contains claims 65-108 drawn to an invention nonelected with traverse in Paper No. 7. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

It would appear the point of novelty of the invention resides in the coating within the capillary channels.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5-17, 20, 22, 24, 109 are rejected under 35  
U.S.C. 102(b) as being anticipated by Li.

Li (Anal Chem) entitled ~~XXXX~~Transport, Manipulation, and  
Reaction of Biological Cells On-Chip Using Electrokinetic  
5 Effects~~XXXX~~ teaches in the abstract, a microfluidic system to study  
cell mobilization within a network of capillary channels. On  
page 1565 column 2 the chips were coated internally using  
AquaSil.

All the features of the claims are taught by Li for the same  
10 function as claimed. Regarding the arrangement of the channels,  
see page 1566 photos and the Fig. 1 on page 1565.

Applicant's arguments filed 8/27/02 have been fully  
considered but they are not persuasive.

15 Applicants argue that the claims now recite a microchannel  
with an internal bore. Li does not disclose an elongated  
enclosed microchannel with an internal bore.

It is the examiner's position that Li teaches elongated  
enclosed microchannels with an internal bore.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

5 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be  
10 negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various  
15 claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the  
20 examiner to consider the applicability of 35 U.S.C. 103<sup>®</sup> and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-4, 18, 21, 23, 25 are rejected under 35  
25 U.S.C. 103(a) as being unpatentable over Li.

Li (Anal Chem) entitled ~~✕~~Transport, Manipulation, and Reaction of Biological Cells On-Chip Using Electrokinetic Effects~~✕~~ teaches in the abstract, a microfluidic system to study cell mobilization within a network of capillary channels. On

page 1565 column 2 the chips were coated internally using AquaSil.

Claims 3-4 differ from Li in that they specify the coating within the channels may be a protein or cells. Claim 18 specifies there is more than one cell type in the suspension and claim 25 is directed to different liquids. Claims 21 and 23 refer to a chemoattractant,

It would have been obvious to one of ordinary skill in the art at the time the invention was made to coat the channels with different substances because Li teaches several different coatings directed to preventing cells and other materials from sticking to the walls of the channels. No function is claimed for the coatings in the claims.

Regarding using more than one cell type or liquid type, Li employs three different types of cells separately and different liquids as desired.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to run the same cells sequentially or in parallel for the same function in view of the teachings of Li because the result would be the same. The liquids employed with the expected result would have been obvious and no function of any liquid is claimed.

Regarding chemoattractants, their function is well known in this art.

Applicant's arguments filed 8/27/02 have been fully considered but they are not persuasive.

Applicants argue that the claims have been amended to include the functions of studying cell attachments and cell-cell interaction. The AquaSil coating of Li is intended to facilitate cell movement whereas the protein coating of the present invention is intended to test cell attachment. Li does not teach chemoattractants.

Li teaches an apparatus for studying cell fusing and mobility, mobilization and control of flow of cells in channels and discusses the problems of cells tend to adhere to walls of channels and sticking effects. Also related are settling out effects. This would be included in the broad statement as now claimed to study cell attachments as amended to dependent claim 3 and cell-cell interaction as amended to claim 4. The present claims do not state the function of the protein coating and the AquaSil coating indeed is employed by Li to study cell attachment. Regarding chemoattractants, Li employs electric effects and to employ known chemicals with the expected effects for the same function would have been obvious.

The title of the invention is not aptly descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ralph Gitomer whose telephone number is (703) 308-0732. The examiner can normally be reached on Tuesday-Friday from 8:00 am - 5:00 pm. The examiner can also be reached on alternate Mondays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on (703) 308-4743. The fax phone number for this Art Unit is (703) 308-4556. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1235. For 24 hour access to

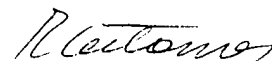


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Ralph Gitomer  
Primary Examiner  
Group 1651

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RALPH GITOMER  
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